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ABSTRACT

Project objective for the second year of the Computer Based Project for the Evaluation of Media for the Handicapped was development of a functional system for evaluation. The evaluation system was intended to be neutral to both type of material being evaluated and population of handicapped children. Development of the functional system for evaluation of media was supported by establishment of a data bank of media and student characteristics, inservice teacher training for six persons on principles of instructional technology, discussions and work sessions held with the staff of the Evaluation Unit of the Buffalo Special Education Instructional Materials Centers, and information dissemination activities. Administrative procedures for collecting, analyzing, and storing data have been developed and modified according to needs. Research findings and questions generated included: effects of pretest and posttest design; automated versus nonautomated testing situations; effects of captioning and audio stimuli; and other related investigations. Appended were diagramatic models of the evaluation system. (CB)

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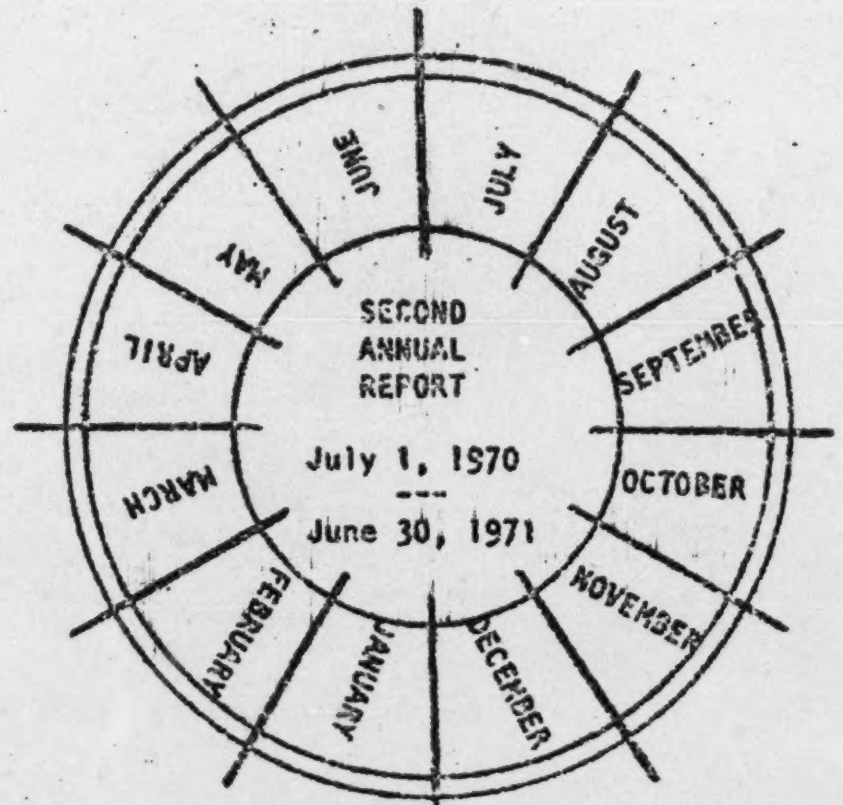


# COMPUTER BASED PROJECT

for the

# EVALUATION

of

# MEDIA FOR THE HANDICAPPED

USOE Project No.423617

SYRACUSE CITY SCHOOL DISTRICT
DEPARTMENT OF SPECIAL EDUCATION

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City School District
Syracuse, New York

DEPARTMENT OF SPECIAL EDUCATION
COMPUTER BASED PROJECT

ANNUAL REPORT
July 1, 1970 - June 30, 1971

## PROJECT OBJECTIVES

The Computer Based Project for the Evaluation of Media for the Handicapped has completed its second year of activities.

The project is conceived as meeting a portion of the committment specified in Bureau of Education for the Handicapped Objective number 3, i.e., "By 1976, provide systems and resources so that significant and relevant materials are readily available to all teachers of handicapped children so that at least 60% of the handicapped children will be served."

One contribution of the Computer Based Project is to be that of providing a system of materials evaluation to produce information on the effectiveness of the materials in Media Service and Captioned Film Depositories with given populations of handicapped children. This evaluative information may be transmitted through the IMC/RMC Network to give educators information with which to make maximum utilization of the materials. The evaluation system is to be essentially neutral to:

1. the type of material being evaluated
2. the population of handicapped children

The development, tryout, and validation of the evaluation system and the resultant data banks of student characteristics and media characteristics are seen as a vital part of a long term, larger encompassing objective of improvement and individualization of the education of handicapped children initially in the Syracuse City School System with eventual dissemination of information nationwide. The evaluative information is seen also as contributing to several areas, namely:

1. teachers, as input for more appropriate instructional decisions;
2. materials producers, as input for design of materials;
3. administrators, as input for management decisions and procedures for providing instruction for handicapped children;
4. researchers, as data for curriculum development, instructional design, learner characteristics, and other relationships.

MAJOR OBJECTIVE

The major objective of the second year of the project was to develop a functional system for evaluating media for the handicapped. All resources during the second year were channeled into accomplishing this task. The successful achievement of this major objective required a multi-component program -- each of which was essential to the successful development of the evaluation system.

The tentative evaluation model developed by the project during the first year underwent intensive examination, testing, modification and clarification during the second year. This involved:

1. application of the tentative evaluation model in the review of existing media and the preparation of the media for the evaluation process;
2. expanding the Student Response System to twenty stations at the Center in order to facilitate its use by whole classrooms of children; and
3. utilizing research findings for decision making related to the evaluative process; i.e., automated instructional system vs traditional teaching, use of pre/post test design, caption vs non-caption, and audio vs non-audio.

The major objective was supported by the following components:

## DATA BANK COMPONENT

The evaluation system was supported by the establishment of a data bank of media and student characteristics. This information served as an essential component in the decision making process related to the media as well as supporting the information collected from the Student Response System. Activities related to this component involved:

1. collecting, storing, and analyzing data related to characteristics of students and media, and student responses to media;
2. outlining procedures for using the data bank;
3. analyzing computer capabilities needed for storing and processing the data and supporting the evaluation model;
4. determining, via the data bank, the cost effectiveness of Student Response System and the evaluation model; and
5. using the data bank to make grouping and materials decisions.

## IN-SERVICE COMPONENT

As part of the Computer Based Project Evaluation Model, it was deemed essential to train teachers to participate in the field testing (Trial C) of the processed materials throughout the handicapped program in the city. Special Education Teachers were trained:

1. to preview and prepare objectives and questions for media being processed by the evaluation model;
2. to utilize techniques of programmed instruction by:
   a. proper use of instructional media in the present curriculum,
   b. reporting evaluative data on the use of materials,
   c. defining behavioral objectives, and
   d. diagnosing student progress.

INTER-PROJECT COMPONENT

The Computer Based Resource Units and Evaluation Project at Buffalo and the Computer Based Project in Syracuse have both been involved in the evaluation of materials and the use of the computer for storage, analysis , and retrieval. Therefore, an essential ingredient in developing the functional evaluation system is to formulate a model for incorporating the extensive information accumulated in Buffalo and the intensive information developed in Syracuse into a system which will provide feedback to both models.

DISSEMINATION COMPONENT

Since evaluation of instructional media is the concern of all project directors, it was desirable for the Computer Based Project to receive feedback from other project directors as to the relevance, appropriateness, effectiveness, ease of utilization, etc, of the Computer Based Project's tentative evaluation model. In addition, the intense focus of the project on materials evaluation provides not only formats for evaluating existing materials, but lends information relative to the preparation of new materials. The dissemination component, as such was and is essential in assisting the project in perfecting a useful and functional evaluation system. This initial step was accomplished by:

1. sending quarterly and annual reports to all Media Services and Captioned Films Project Directors;
2. preparing evaluative information on several MS/CF films and filmstrips for dissemination to teachers in the Syracuse City Schools;

3. assembling a package of supportive materials for each media evaluated consisting of objectives and criterion questions for its use;
4. preparing a handbook on procedures and techniques for using Computer Based Project Model for evaluating media; and
5. preparing a list of recommendations relative to production of new materials.

OBJECTIVE I

".....to develop a functional system for evaluating media for the handicapped."

The first year had produced a tentative evaluation system and some experiences involving children with media. Several shortcomings were identified and corrections made to some obvious problems.

The functional system developed during this second year of operation is still capable of further refinement for cost-effectiveness and the inclusion of various forms of instructional media other than film and filmstrips.

The Third Quarterly Report, dated March 31, 1971, contained a description of the tentative evaluation model. This model is continually being evaluated and modified.

A flow chart of its present state is in Appendix A.

Areas that have been defined in the third quarterly report and remain without change will not be repeated in this report.

The first change in the model has been in the selection of media for evaluation and in the personnel assigned to that task.

Materials on file are placed in the evaluation process on a priority

basis. The priority system was described in our second quarterly report dated December 31, 1970. However, even it has had to be modified. The priority system now allows a staff member to preview a film and fill in the checklist of information on the material being examined. One piece of information is his professional judgement for priority of evaluation. This judgement is recorded on a scale from "A", high to "D" low priority. In making this judgement he considers content appropriateness, method of presentation, and overall effect. If a film is rated "A", it proceeds in the evaluative process. If it does not receive an "A", it goes to a hold file where, when the available "A" films are depleted, it is subject to reclassification. The other information collected in this critical viewing is also recorded on the priority classification checklist and is punched on data cards to be used for scheduling and other administrative tasks.

A piece of instructional material that has received a priority classification of A goes on into Trial Attention Observation (TRIAL AO), which is also a new step in the evaluation process. Trial AO is a small sample, field based interaction of student, media, teacher, and tester. It has replaced our old Trial A experience out in the schools and has a different purpose. The purpose of Trial AO is to see if the students are involved enough with the medium to permit us to expend further time and energy on it. If they are, their responses give insights as to their perceptions of the key parts of that material.

The field testing techniques developed at the project and reported in the first quarterly report are essentially the same with the exception of the lack of pre-testing and post-testing of students.

Experience will dictate exact sample size for Trial AO, but at this time plans are for three classroom unit observations at different age and handicap levels.

Five data bases will be collected:

1. Student attention data
2. Student interview data
3. Student responses to open-ended questions on a group setting
4. Teacher interview data
5. Field tester data.

Data base three is the only new data base and will be used primarily for insights for the question writer in preparation for Trial A.

At this point, a decision is made on whether or not to continue a piece of material in the evaluation process. If the decision is YES, the material is prepared for Trial A. If the decision is NO, a final report is written on the material using as much information as is already available. The criterion for the continuation of an instructional material in the process is presently being evaluated, but tentatively a 67.5% minimum level of student attention is being used. (75% level of the students watching 90% of the time.)

The process of preparation for Trial A has not significantly changed but significant administrative changes have been made which should be mentioned. Whereas previously there had been three instructional specialists sharing this and other responsibilities, there is now one person responsible for the development of all evaluation instruments. This change has been made for two basic reasons. First, by devoting more of one's time to one basic area, it would seem reasonable to expect more depth and expertise in the approach and consequently a better product. Second, by assigning one

person this responsibility, accountability for instrument development and quality is more clear.

The process of preparation of questions for a piece of material might be best explained by the use of an example.

This process involves determining the message of a film, isolating the facts, principles, and ideas by time segments, determining which facts are appropriate at various levels of student performance, writing behavioral objectives for specific levels of students, determining the type of question style to be used, and writing questions to specific cells of the STRUCTURE OF THE INTELLECT. The question written may be related to specific time segments of the medium.

The questions developed can be assembled into a test instrument which can probe segments of the sample population such as by age or by type of handicap.

Following is an example of this technique applied to the film "Animals In Winter."

GENERALIZATION: Animals live through winter in different ways ----

| PRIMARY | INTERMEDIATE | SECONDARY |
|---|---|---|
| FACTS: | FACTS: | FACTS: |
| 1. Some animals are friends. | 1. Some animals change colors ir winter. | 1. Feathers keep birds warm. |
| 2. Some animals are enemies. | 2. Some animals sleep most of the winter. | 2. Moths live through winter as a pupa. |
| 3. Some animals live in dens. | 3. Some animals sleep and hunt during the winter. | 3. Animals like woodchuck and chipmunk hibernate during winter. |
| 4. Some birds don't fly south. | 4. A caterpillar or moth can not live through winter. | 4. Rabbits stand still when danger is near. |

| PRIMARY | INTERMEDIATE | SECONDARY |
|---|---|---|
| BEHAVIORAL OBJECTIVES | BEHAVIORAL OBJECTIVES: | BEHAVIORAL OBJECTIVES: |
| 1. Given three visuals, the child will select one that shows animals are friends. | The child will identify the following by responding correctly to multi-choice questions:<br>1. Animals change color in winter. | 1. The child will define pupa as being a stage in the life cycle of a moth. |
| 2. Given three visuals, the child will select one that shows animals are enemies. | 2. Animals sleep in winter. | 2. The child will define hibernation as a sleep like state of some animals during winter. |
| 3. Given a visual/audio question the child will identify a bird that doesn't fly south. | 3. Some animals sleep and hunt during winter. | 3. The child will explain why a rabbit stands still when danger is near. |
| 4. The child will identify a visual of a woodchuck as a den. | 4. A caterpillar or moth cannot live through winter. | 4. The child will explain why feathers keep a bird warm. |
| Questions written to cells of Structure Of The Intellect for Primary Behavioral Objectives. | Questions written to cells of Structure Of The Intellect for Intermediate Behavioral Objectives. | Questions written to a cell of Structure Of The Intellect for Secondary Behavioral Objectives. |
| Memory Figural Units | Memory Semantic Relations | Convergent Semantic Classes |
| Memory Symbolic Units | Cognition Semantic Relations | |

The present Trial A has the same objective, to eliminate test items which do not measure behavioral change, as the old Trial A but the setting is different. Instead of being conducted in the schools it will be conducted at the Computer Based Project Center with additional students being bussed in to utilize the Student Response System. This change was necessitated by reactions of the students, teachers, and staff to the problems encountered by using untested questions in the schools, not reinforcing correct post test answers, and general difficulty in gathering reliable field test data.

Output will be an attention profile, results on the pre/post test, interview data, and anectodal comments. During the processing of the pre/post test, the computer will reject those questions which fail to satisfy the project criterion for question acceptability, 20% gain and/or 80% prior knowledge by age and handicap level.

The material is then formated for Trial B by eliminating those rejected questions and making any other preparations necessary. A Trial B sample is assigned in the same manner as for A and the same testing procedure is used. The purpose of Trial B is different, however. Trial B, using the instrument developed in Trial A, is to evaluate the media. In B, the media is the prime subject of examination, not the questions.

The instructional specialist in charge of technical writing will receive a folder of data from Trial B. In this folder will be pre/post printouts, attention profile, interview results, and anectodal comments from Trial B. Also available will be all the other data on the material under examination that the Specialist must make evaluative statements about under the following categories: objectives, recommended usage, attention data, interview data, teachers' evaluation, questions, recommended question list, descriptors, and vocabulary.

An example of this writeup was included in the Third Quarterly Report but modifications are anticipated during the next quarter.

The report at this point represents a close look at student interaction with instructional materials and their responses to it. One weakness of this close look, however, is the elimination of two key factors in the educational process: the student in a "Normal" classroom setting and his teacher. These factors necessitate a Trial C or field test phase. The purpose of Trial C is to validate our media evaluation statements in that "Normal" classroom setting with the teacher.

There are three key elements in this field test phase. First, the teacher must find something in the report that makes her feel that it is appropriate for her students. Second, she must present it to her class and/or student and respond to the questionnaire. Third, she will be encouraged to have the child utilize a post test instrument selected from our report and/or her own instrument.

This data will be returned to the center for processing. After a sample at each age and handicap level has been accomplished, the data will be surveyed and compared to the media evaluation report. Consistencies in Trial A and B performance and Trial C results are hoped for. Disparity in results will require a check of Trial B interpretation. If still thought correct a larger Trial C sample will be run. If disparity continues re-evaluation of the material may be necessary.

The final evaluation report will be submitted to MS/CF, the Buffalo Computer Based Resource Units Project, and disseminated to others on request.

DATA BANK COMPONENT

At the present time, the project has on file seventeen characteristics

on each of 1565 children in special education classes, has established files on 404 films, 157 filmstrips, and has recorded approximately 10,000 student responses to questions on media, 82 attention observation profiles, and interview data from the students. A data analysis breakdown for the year is in Appendix B.

Attention has been directed to analyzing student responses to media in order to develop format and information which will allow the tentative evaluation report to be optimal. Format for student characteristic data analysis and its relationship to student performance has been established but the actual analysis of the data has been delayed due to computer facility problems.

Procedures for the use of the data bank have been developed and are an ongoing activity as the sophistication of the data bank increases.

A variety of computer capabilities have been investigated and were the subject of a position paper appended to the recycling proposal for 1971-72. Constant analysis of the demands and resources of the project will be necessary.

IN-SERVICE COMPONENTS:

A core of 6 teachers were given background training in the principles of instructional technology and became involved on an after school basis with the project activities. Their primary function was the development of items for testing the effectiveness of media; but over the course of the year more innovative attempts at using instructional materials in the classroom were noted. A selected group of 5 additional teachers were utilized to experiment with approaches to mediated instruction preliminary to Trial C and further training of larger groups of special education teachers. The format for this in-service was innovative and proved to be successful. The

project contracted with the teachers for a behavioral objective that they identified as important to their teaching and provided resources, support, supervision, and evaluation along the way for her achievement of the objectives. This experience was not only beneficial to the teachers but increased the performance level of the students and was extremely reasonable in terms of cost. (The teachers put in three to four times more hours than were contracted for and with no hesitancy or griping.) The removal of the role of the in-service director as a dispenser of information and establishing a position more as a supporter and a manager of instruction were very useful and successful.

INTER PROJECT COMPONENT

Discussions and work sessions were held with the staff of the Evaluation Unit of the Buffalo SEIMC. Further clarification and development will be necessary but there appear to be no insurmountable problems.

The Evaluation Unit of the Buffalo SEIMC has classified all MS/CF filmstrips using their categories and the Computer Based Project is checking these classifications with the validated objectives tested at the project.

DISSEMINATION COMPONENT

The specific dissemination activities of the project included:

1. Sending 3 quarterly reports to the project mailing list which includes other MS/CF project directors.
2. Preparing evaluative information on each film and filmstrip that has been through the evaluative process.
3. Assembling a package of appropriate materials for each media evaluated for distribution to classrooms.

4. The data processing manual which specifies procedures and techniques for using the model in evaluating media has been prepared in draft form.
5. Presentation of papers at national and international conventions. (See Appendix C)

The project did not sponser a Media Evaluation Workshop for all Project Directors this year and did not prepare a list of recommendations relative to the production of new materials due to the availability of existing position papers which adequately express the project's opinion.

## SUPPORT ACTIVITIES AND FINDINGS

### ADMINISTRATIVE ORGANIZATION

Project Staff have been involved in several activities to support the attainment of specified objectives that may be significant to the readers of this report.

Administrative organization and procedures have developed along with the Project.

### EQUIPMENT INVENTORY

An effective equipment inventory procedure has been developed which allows for maximum usage of the equipment but also accountability for its location and maintenance.

### FILING

Procedures for filing of reports on the instructional materials have been developed and implemented. A catalog of films was developed and distributed to the special education classroom teachers in the city school district preparatory to the usage of the materials in their classrooms.

DATA COLLECTION

Administrative procedures for collecting, analyzing, and storing the data collected have been developed and modified as needs materialized. Problems resulting in lost or unuseable data have been identified and rectified for next year's effort.

One of the largest problem areas was in the gathering of information from young children not fully capable of responding to verbal and/or written questioning techniques by indicating the desired answer on an answer sheet. Modifications of response sheet format and evaluations of skill level of the children indicated the scope of the problem. Crude training programs were instituted with some success but the area most subject to review is the questioning technique itself.

Several alternatives have been identified and experimented with on a limited basis. One such alternative is tape recording a group discussion about the movie after its showing. Another alternative is the construction of a group story about the movie in the same fashion as the morning "Classroom News" is done in many classrooms. The students follow up this activity by drawing a picture of their perception of the film and then identify what they have drawn to the teacher. This technique offers some exciting potential to the evaluation process.

One other form of data that has not yet been fully developed but that has potential is the interview format. Presently, the project is asking children simple questions like "Did you like the film?" and "How much did you learn?" Techniques such as this may permit more in depth and valid responses and help identify some affective dimensions of the instructional material.

## CLASSROOM RELATIONS

The whole areas of relationships of the project with the classroom teacher has come under analysis and some changes have been instituted. Teacher feedback has indicated that teachers desire regular feedback on results of programs that their children are involved in and advance notice and veto power on materials selected for showing. The interesting phenomenon here is that they did have both of these powers all year long but generally failed to exercise them. The biggest discussion has been on curricular relevancy of the materials being evaluated. It is the feeling of the project that these materials should be evaluated, at least initially, in a neutral environment; that is, evaluated independent of "good" usage or "bad" usage of instructional materials.

The teachers have been given a copy of the questions asked on a piece of material at the time of the classroom visit. No formal follow-up has been made on the usage of these materials but general indication from the field testers indicate that only a few teachers take advantage of this material and integrate it into their program. These do appear to have public relations value for most teachers, however. The specific results of the feedback from classrooms involved is included with the questions in Appendix D.

These indications have helped to change the process as indicated in the first portion of this report.

## JOB DESCRIPTIONS

As the development of the model progressed, the need for staff members to function as a team with specific job responsibilities became apparent.

Whereas the project had operated effectively in the developmental stages with shared responsibility areas, the increase in quantify of material and depth of approach taxed that organization. Next year, the previously shared responsibilities of question development, result interpertation, technical writing, school relationships, testing supervision, curricular integration, and dissemination will be assigned to specific staff members rather than shared. This does not preempt one staff member from asking another's assistance but it does pin point accountability and lessen the confusion of job responsibilities for each staff member.

STUDENT RESPONSE EQUIPMENT

The unique equipment prepared by General Electric's Research and Development Corporation for the project's usage has been very satisfactory after some preliminary problems with reliability. These problems should be expected with equipment in a development state and the cooperation that the project received has been outstanding in the resolution of those problems. Specifically, at one time in the winter the project's twenty SRS stations were blowing integrated circuits on an alarmingly regular basis with no apparent cause. The magnitude of this problem was of concern both to the project and General Electric. After checking several standard possibilities, such as voltage fluctuation, short circuits, etc. it was discovered that the problem resulted from the children walking across the carpeted floor with the relative humidity being low. The resultant static electrical shock when the children touched the responder was sufficient to blow out the integrated circuit and cause a malfunction. Grounding the stations, spraying the carpet with "X-static," and the purchase of a humidifier solved the problem.

An additional observation of the affect of the SRS equipment on student performance came at the beginning of the school year. Delivery of five new stations had been delayed and some students had to sit at desks without responders and answer with paper and pencil. The disappointment of these children became more obvious as time went by. Finally, to restore the positive feelings of the group without stations, non-working stations were placed on the desks and the children were told that they were working.

The Audio/Visual Responder unit developed by General Electric has become a very effective tool in the control and evaluation of non-supervised presentations of programmed materials and can also be utilized with non-programmed materials. The project uses it as a monitoring device for film-strips and Project LIFE evaluations. In addition to the monitoring function, an audio recording of the captions on filmstrips is made. This somewhat eliminates the problem of the child's ability to read.

The reliability of the AVR has increased remarkably over the past year and arrangements are now underway for exchange of the developmental units for production units.

RESEARCH FINDINGS AND QUESTIONS GENERATED

1. Effects of pretest/posttest design. Because of the limitations of the pre/post test design, it was desired to answer several questions concerning its use and effects as determined from the data. Below are the findings to date.

   A. Administration of pretest seems to depress posttest scores

by about 10% when posttest scores of similar groups, differing only in having had a pretest are compared.

B. The same depressing effect is noted whether data is collected in home classrooms using a paper and pencil method or using the automated response system.

c. Comments of children, frequently noted in testing situations, suggest that questions answered correctly on pretest are remembered when presented in posttest.

D. There is no significant difference in the abilities to identify numbers and letters and correct choices on posttest questions for young EMR.

E. Test items giving little, no, or negative gain with a small group (N = 5 to 25) tend to not change when a larger group (N = 125) is used.

II. Automated vs Non-automated testing situations. Considerable concern has been expressed about the use of an automated system to collect data. In an effort to substantiate the student response system (SRS) the following findings occurred.

A. No significant differences were found in the answer responses on multiple choice questions between paper and pencil tests and the automated system.

B. Posttest scores tend to be about 10% higher using the SRS than in a paper/pencil mode, however, pretest scores tend to be higher also.

C. As noted in 1-B above, pretests have a depressing effect on posttest scores; that is, when a pretest is administered, the posttest scores tend to be lower than when it is omitted.

D. Children tend to be more eager to respond in the SRS than in their own classrooms. This could be caused by:

1. movement from classroom to SRS,
2. immediate confirmation of answers is given in SRS,
3. equipment used in SRS requires manipulation, or
4. other unidentified factors.

E. Less distraction is recorded on attention profiles in SRS than in regular classrooms. This results in less variablility of attention profiles, however, points of greatest non-attention can still be identified occurring at the same places in a media in either setting.

F. Greater test management difficulties are noted in situations where children are moved from regular classrooms to another site other than SRS room.

III. Effects of captioning and audio stimuli. These studies have just begun. The findings thus far include:

A. EMH children make significantly more correct responses in an audio/visual (both stimuli) setting than when either an auditory or visual only stimulus is administered.

B. A significant difference in correct scores is noted when the auditory (sound track) of a film is heard prior to the showing

of the film than in the other combination of visuals only or prior to showing with either or both auditory and visuals presented without any preliminary.

C. Older EMH (junior high) tend to vocally verbalize the captions during a showing without being encouraged to do so.

IV. Other investigations. During the course of the second year a number of short investigations have been conducted with the following findings.

A. EMH children tend to tire after about 25 frames of material presented in an individual carrel.

B. Selection of the correct answer in a multiple-choice format requires a higher level skill than knowing the numbers and letters.

C. Children can be trained to select correct responses in the SRS system.

D. There are common points of non-attention during the length of a given media when shown to a cross section of available EMH population.

E. Inter-rater reliabilities for observers of attention are quite high .95+ when using video-taped subjects or the same classroom showing.

F. Reliabilities of .60 - .80 are obtained from different samples of similar age and academic groups using the same or different observers of attention.

G. Low reliabilities (of negative to +0.2) are obtained when the attention of young groups are compared to older groups.

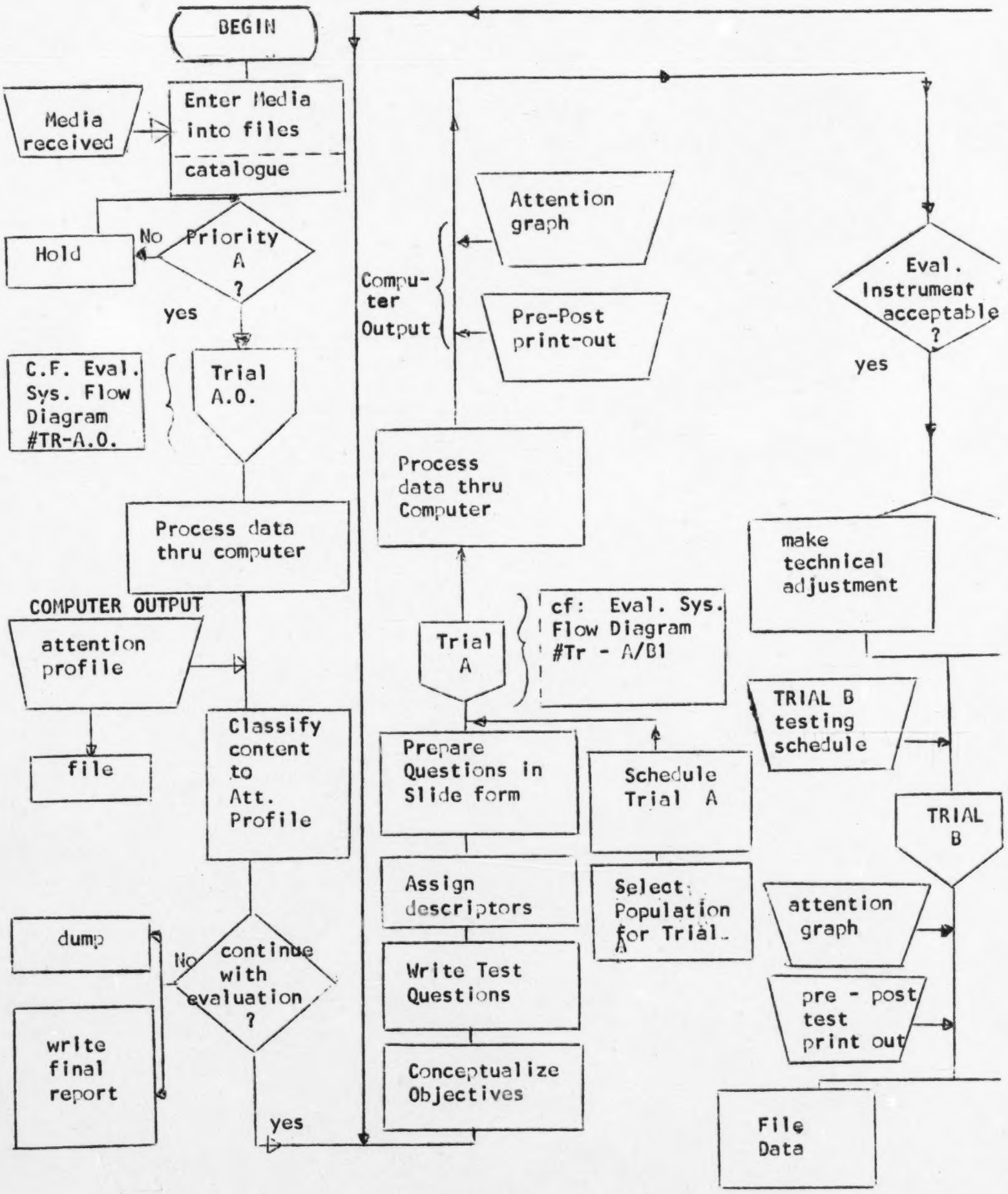
OBJECTIVES FOR 1971 - 1972

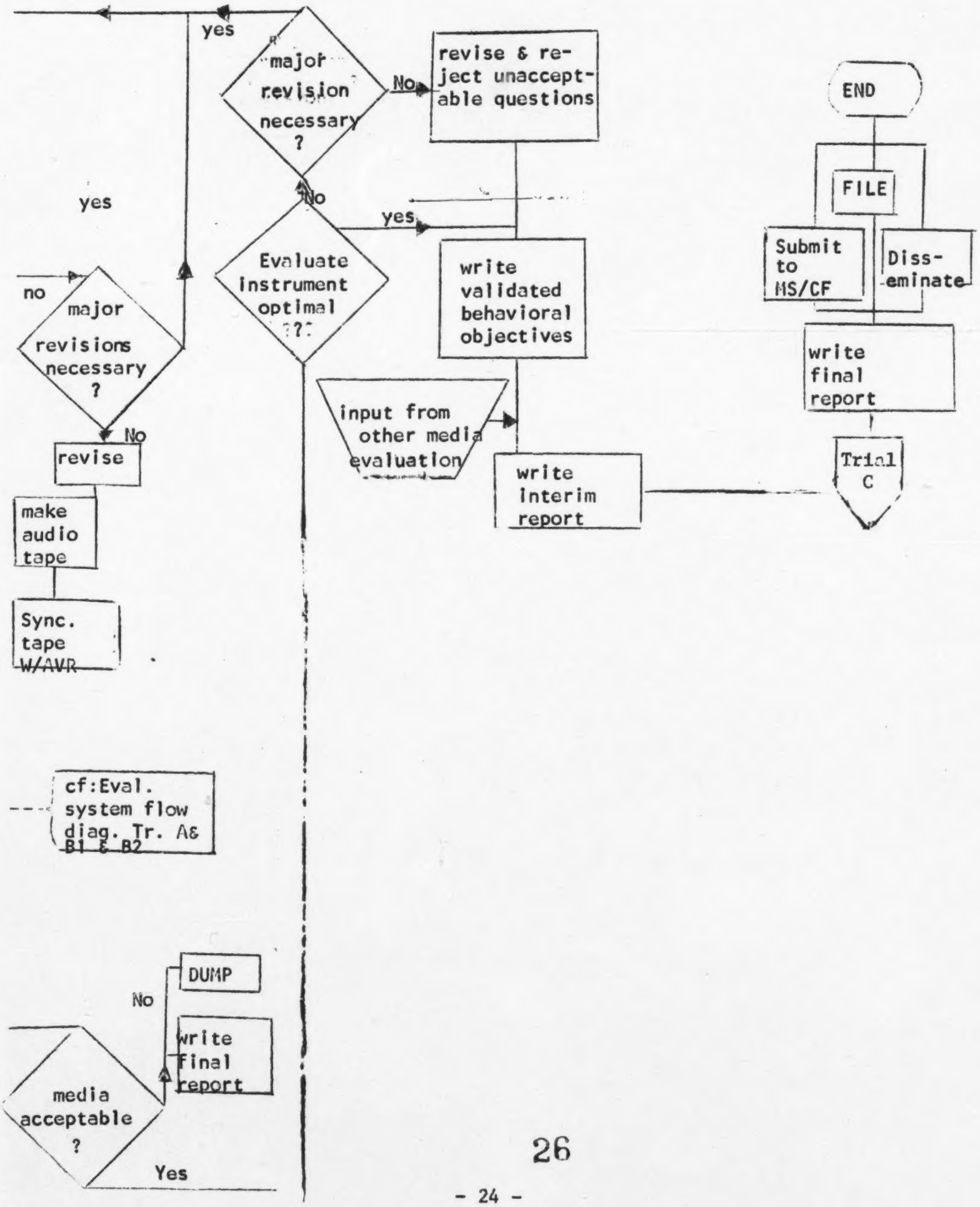
The project has established the following goals for 1971 - 1972.

1. The evaluation of 50 films and 100 filmstrips.
2. Refinement of the model for cost effectiveness.
3. Development of a classification system.
4. Dissemination of evaluative information.
5. Evaluation of some materials before purchase.
6. Exploration of effective media techniques for educating the handicapped.
7. Utilization of computer services and data banks.
8. Preparation of personnel for field testing.

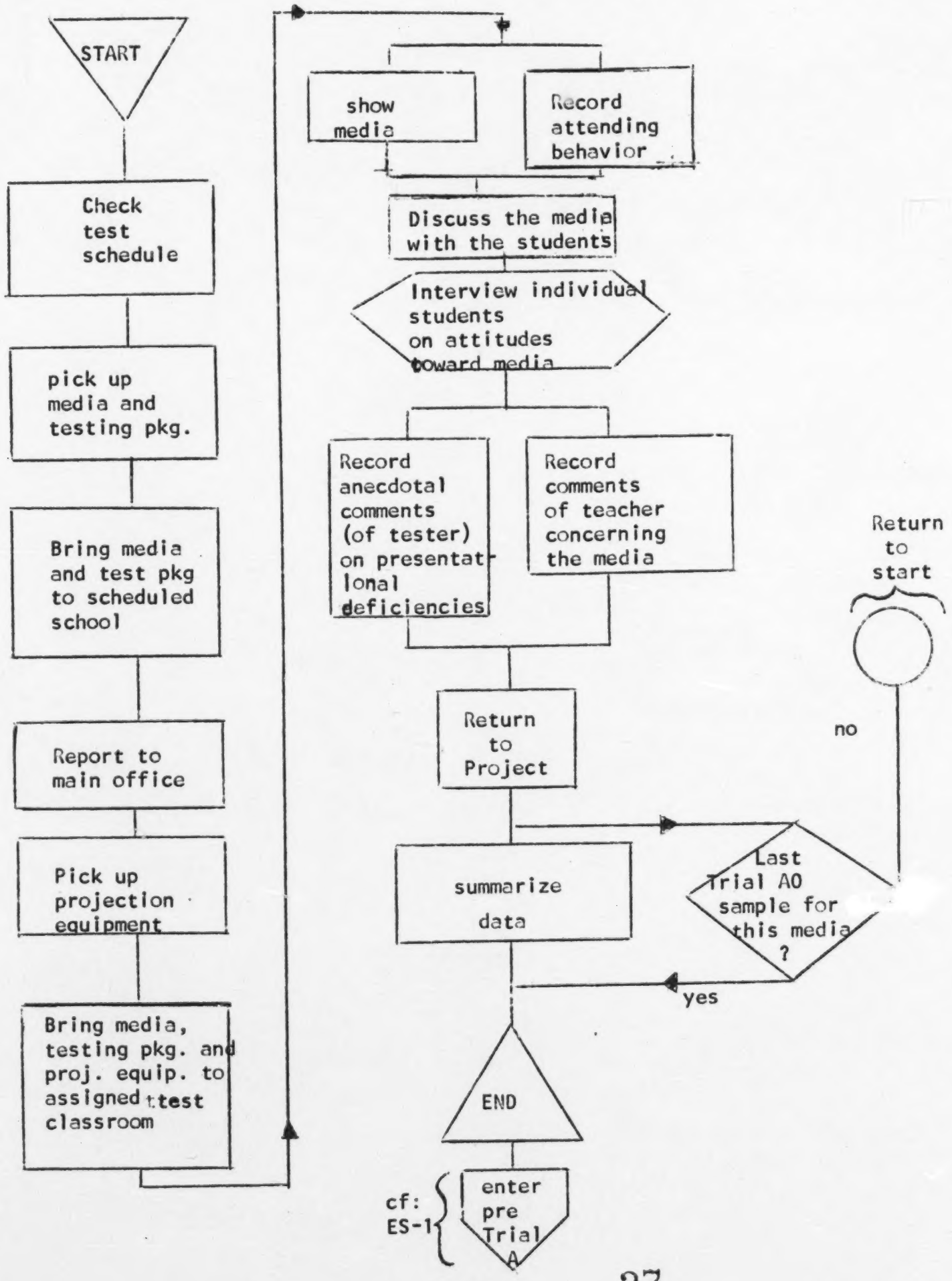
APPENDIX A

EVALUATION SYSTEM - ES - 1

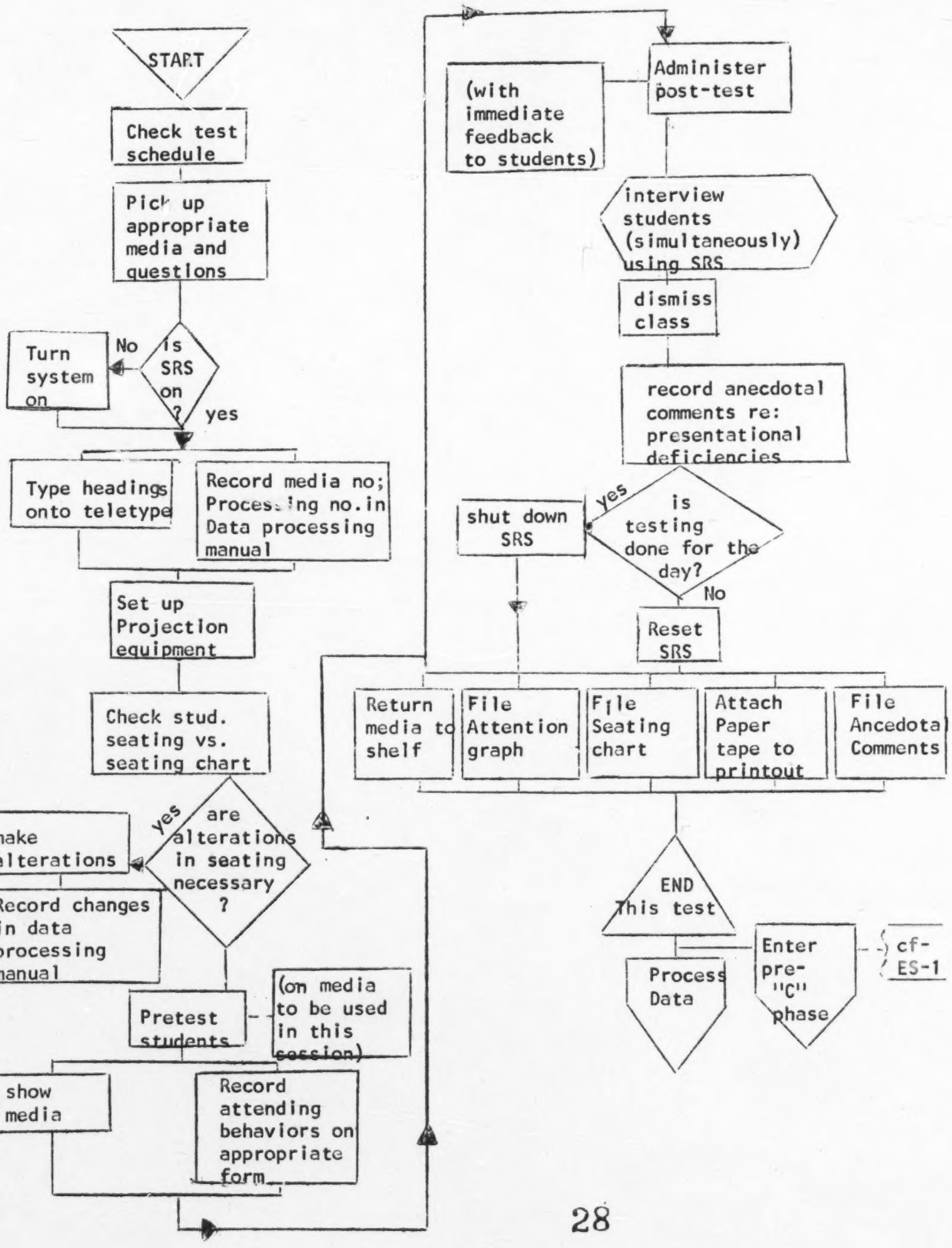



yes
major revision necessary ?
No
revise & reject unacceptable questions
END
FILE
Submit to MS/CF
Diss-eminate
write final report
Trial C
yes
No
yes
Evaluate instrument optimal ??
write validated behavioral objectives
no
major revisions necessary ?
No
revise
input from other media evaluation
write interim report
make audio tape
Sync. tape W/AVR
cf:Eval. system flow diag. Tr. A& B1 & B2
DUMP
No
write final report
media acceptable ?
Yes

EVALUATION SYSTEM TRIAL ATTENTION OBSERVATION TESTER'S ROLE #TR-AO


START
Check test schedule
pick up media and testing pkg.
Bring media and test pkg to scheduled school
Report to main office
Pick up projection equipment
Bring media, testing pkg. and proj. equip. to assigned test classroom
show media
Record attending behavior
Discuss the media with the students
Interview individual students on attitudes toward media
Record anecdotal comments (of tester) on presentational deficiencies
Record comments of teacher concerning the media
Return to Project
summarize data
Last Trial AO sample for this media ?
no
yes
Return to start
END
cf: ES-1
enter pre Trial A

EVALUATION SYSTEM-GROUP MODE-TRIAL A&B TESTER'S ROLE TR-B1

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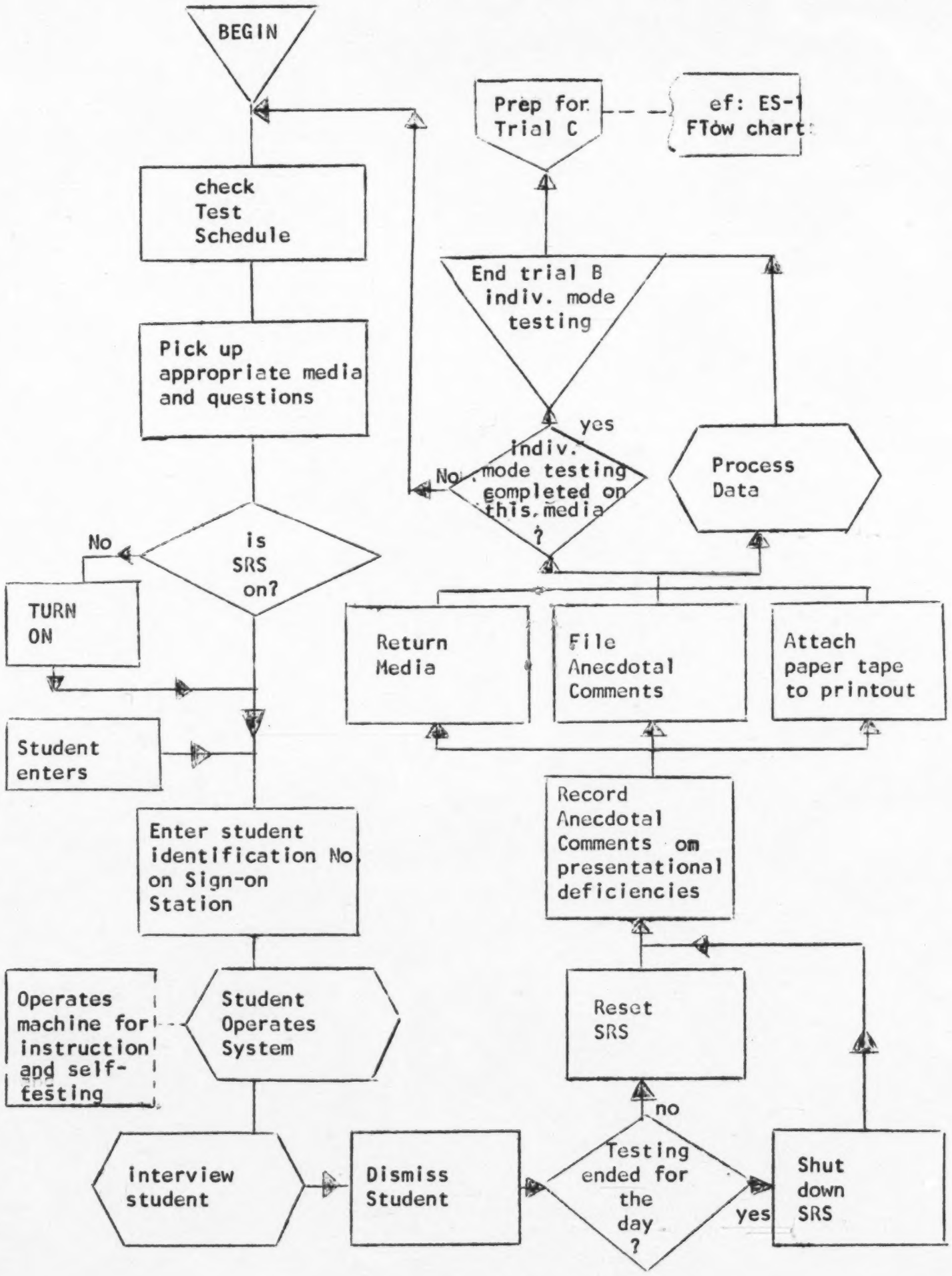
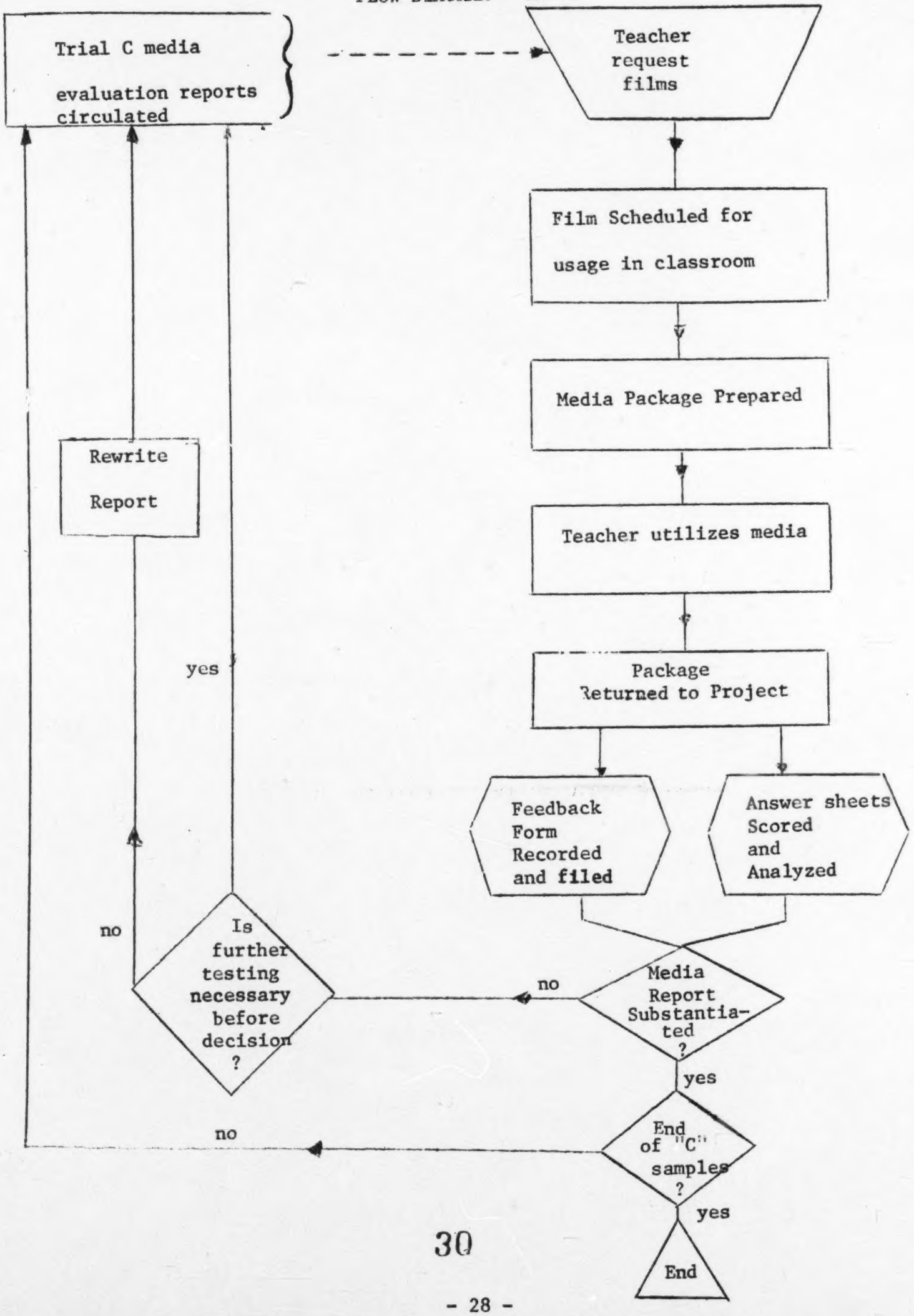
EVALUATION SYSTEM TRIAL B

INDIVIDUAL MODE -- TESTER'S ROLE (TR-B2)



EVALUATION SYSTEM
FLOW DIAGRAM - TR-C1



APPENDIX B

TABLE I

COMPUTER USE FOR SECOND YEAR

| MONTH | TERMINAL TIME (hours) | | PROCESSING UNITS (seconds) | | COST | |
|---|---|---|---|---|---|---|
| | RADC* | MARK II ** | RADC | MARK II | RADC' | MARK II |
| July | 42 | 2 | 906 | 11 | 1041 | 92 |
| August | 18 | 2 | 460 | 13 | 637 | 95 |
| September | 42 | 2 | 1350 | 9 | 1275 | 104 |
| October | 55 | 3 | 1797 | 11 | 1454 | 98 |
| November | 26 | 3 | 912 | 56 | 869 | 125 |
| December | 39 | 2 | 3731 | 17 | 1861 | 99 |
| January | 43 | 1 | 1876 | 13 | 1340 | 90 |
| February | 45 | 1 | 1750 | 5 | 1325 | 66 |
| March | 43 | 1 | 1680 | 7 | 1280 | 49 |
| April | 38 | 3 | 1575 | 23 | 1190 | 81 |
| May | 52 | 3 | 2120 | 21 | 1500 | 85 |
| June | 42 | 4 | 1800 | 53 | 1300 | 106 |
| TOTALS | 485 | 27 | 19,957 | 239 | 15,072 | 1090 |
| GRAND TOTAL | 512 | | 20,196 | | $16,162 | |

* - Rome Air Development Centered Computer
** - General Electric Time Sharing Mark II Service
' - Value of service if obligated to pay

TABLE II

MAJOR PROCESSING PROGRAM USE

| MEDIA PROGRAMS | EVALUATION SYSTEM STEP | | | TOTAL |
|---|---|---|---|---|
| | TRIAL A | TRIAL B | TRIAL C | |
| 70 Films | | | | |
| Pre/Post | 169 | 262 | 11 | 442 |
| ANALB | 64 | 8 | 29 | 101 |
| | | | | 543 |
| 45 Filmstrips | | | | |
| Pre/Post | 32 | 8 | -- | 40 |
| ANALB | 8 | - | 8 | 16 |
| | | | | 56 |
| 52 Films | | | | |
| Attention graphs | 82 | | | 82 |

APPENDIX C

STAFF TRAVEL AND CONFERENCE ATTENDANCE

| DATE | DESTINATION | PERSONNEL | PURPOSE |
|---|---|---|---|
| 8/3-6/70 | New York City | Roberts | Attendance at American Management Association's Education and Training Exposition. |
| 8/20/70 | Buffalo | Bond | Investigation of Computer capabilities, similarities, and differences and confer on computer staff relationships between the two projects. |
| 10/8/70 | Schenectady | Mead & Greenfield | Investigation and discussion of General Electric Research and Development Center hardware and computer support service. |
| 10/15-16/70 | New York City | Mead<br>Roberts<br>Bond<br>Gronosky<br>Spaid | Attendance at New York State Federation of Council for Exceptional Children Annual Conference and the establishment of contacts with Universal Education and Visual Arts; Children's TV Workshop. |
| 11/5-6/70 | Grossingers, N.Y. | Mead | Presentation of a program on the project at the New York State Educational Communications Conference in cooperation with the Special Education Instructional Materials Center at Albany. |
| 12/2-4/70 | San Antonio | Kipfer | Presentation of a paper at the Special Council for Exceptional Children convention on Instructional Technology. |
| 12/16/70 | Rome, N.Y. | Mead<br>Bond<br>Greenfield | Confer with Rome personnel on computer changes, programming, and allocation of system time and space to the project. |

| DATE | DESTINATION | PERSONNEL | PURPOSE |
|---|---|---|---|
| 1/30 2/6/71 | New York City | Bond | Attendance at Non-parametrics presession and convention of American Educational Research Association. |
| 1/30 2/6/71 | New York City | Spaid<br>Gronosky | Attendance at Behavioral Objectives Presession. |
| 2/10-11/71 | Buffalo | Kipfer | To attend a Special Study Institute on Media Evaluation in Special Education - SEIMC. |
| 3/23-26/71 | Philadelphia | Spaid<br>Bond | Presentation of paper and attendance at conference of Society for American Educational Communications and Technology. |
| 3/31<br>4/1-2/71 | Rochester | Spaid<br>Gronosky | Attendance at National Society of Programmed Instruction and Evaluation. |
| 4/5-7/71 | New York City | Bond<br>Mead | Presentation of workshop session on media evaluation and participate at related sessions. |
| 6/11/71 | Little Rock | Kipfer | Presentation of a paper at the Convention of American Instructors of the Deaf Educators. |
| 6/9-14/71 | St. John's<br>Newfoundland | Bond | Attendance and presentation of two papers at Canadian Council for Research in Education Conference. |

APPENDIX D

1. Films that were presented by the project were generally useful teaching tools.

2. Multiple-choice questioning is the most effective method of gaining information from my students.

3. The project keeps me informed about my students' progress and its own progress.

4. Field testers have been courteous and friendly toward the students.

5. The children looked forward to the weekly film showings.

6. My students were thoughtful and serious when responding to the pre and post tests.

7. The questioning procedure used was <u>not</u> appropriate for my students.

8. The films shown by the project did not supplement my lesson plans.

9. My students looked forward to weekly visits by the project field tester.

10. Questions presented on the screen were easy to see.

11. Language used in questioning has been too advanced for my students.

12. The pretest/posttest scheme was dull and boring for my students.

13. Field testers were prompt and efficient.

14. The films shown generally did not take into account the ability level of my students.

15. Most of the films shown by the project were of interest to my students.

16. My students did not participate in the project with great interest.

17. I enjoyed cooperating with the project.

18. I should be kept informed about my students' progress and project progress.

19. The weekly visits by project staff member have been disruptive to my class.

20. I would like to participate in the project next year.

20 Items scored

34 Teachers poled

2.59 Mean Response

2.44 Standard deviation

MOST DESIREABLE RESPONSE SCORED AS FIVE

| ITEM | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1 | 3 | 5 | 9 | 16 | 1 |
| 2 | 2 | 10 | 9 | 10 | 3 |
| 3 | 2 | 12 | 8 | 12 | 0 |
| 4 | 1 | 0 | 0 | 11 | 22 |
| 5 | 3 | 5 | 8 | 13 | 5 |
| 6 | 3 | 12 | 8 | 8 | 3 |
| 7 | 1 | 9 | 7 | 14 | 3 |
| 8 | 6 | 21 | 7 | 0 | 0 |
| 9 | 1 | 5 | 8 | 15 | 5 |
| 10 | 0 | 4 | 3 | 23 | 4 |
| 11 | 5 | 8 | 9 | 11 | 1 |
| 12 | 2 | 12 | 9 | 11 | 0 |
| 13 | 1 | 2 | 2 | 20 | 9 |
| 14 | 4 | 11 | 8 | 11 | 0 |
| 15 | 0 | 12 | 3 | 18 | 1 |
| 16 | 0 | 11 | 9 | 13 | 1 |
| 17 | 0 | 0 | 3 | 26 | 5 |
| 18 | 0 | 0 | 2 | 20 | 12 |
| 19 | 0 | 5 | 4 | 19 | 6 |
| 20 | 3 | 1 | 6 | 17 | 7 |
| TOTAL | 37 | 145 | 122 | 288 | 88 |
| % | 5.5 | 21.5 | 18% | 42% | 13% |

SUMMARY BY CATEGORY

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Questions and Questioning technique Items 2,6,7,10,11,12 | | | | | |
| Frequency | 13 | 55 | 45 | 77 | 14 |
| Percentage | 6% | 27% | 22% | 38% | 7% |
| Film Shown Items 1,5,8,14,15 | | | | | |
| Frequency | 16 | 54 | 35 | 58 | 7 |
| Percentage | 9% | 32% | 21% | 34% | 4% |
| Field Testers Items 4,9,13,19 | | | | | |
| Frequency | 3 | 12 | 14 | 65 | 42 |
| Percentage | 2% | 9% | 10% | 48% | 31% |
| General Feelings toward Project Items 3,16,17,18,20 | | | | | |
| Frequency | 5 | 24 | 28 | 88 | 25 |
| Percentage | 3% | 14% | 17% | 51% | 15% |

APPENDIX E

CONSULTANTS' UTILIZATION

| NAME | ORGANIZATION | ACTIVITY |
|---|---|---|
| Mr. Richard Albano | Director, Project SAFE S.U.C. Oneonta, N.Y. | Discussions on flow-charting and PERTing of both evaluation systems and overall project management. |
| Dr. Burton Blatt | Director, Division of Special Education and Rehabilitation, Syracuse University | Discussion on overall project goals and population characteristics. |
| Dr. Donald Erickson | Director, C.E.C. Information Center on Exceptional Children | Discussions on overall product with special emphasis on dissemination. |
| Dr. Kenneth Fishell | Associate Professor - Associate Director for Research and Development Center for Instructional Communications Syracuse University | On-going contributions to project management and the development of the evaluation system. |
| Dr. Silas Halperin | Associate Professor - Measurement, Evaluation, and Statistics School of Education Syracuse University | Discussions on statistical analysis techniques. |
| Mr. Howard Lohr | (Former RADC Association) | Discussions on computer system problems and the identification and implementation of solutions. |
| Dr. Mary Meeker | Associate Professor Guidance Center Loyola University Los Angeles, California | Discussions on the inclusion of the Structure of the Intellect model into the project's descriptors. |
| Dr. William Meyer | Professor Psychology School of Education Director of the S.U. Center of Early Childhood Education Center at S.U. Syracuse University | Discussions on the inclusion of attention gathering techniques in the evaluation system. |
| Dr. Gabriel Ofiesh | Director, Center for Educational Technology Catholic University of America | Discussions on the overall evaluation system |
| Mr. Casper Paulson | Teaching Research, Monmouth, Oregon | Discussion on measurement and evaluation problems. |

| NAME | ORGANIZATION | ACTIVITY |
|---|---|---|
| Dr. Heinz Pfeiffer | Manager, Educational Technology Branch General Electric Research & Development Center | Discussion on overall project goals. |
| Dr. Glenn Vergason | Chairman, Department of Special Education Georgia State University Atlanta, Georgia | Discussion on overall project goals and characteristics of the student population. |
| Dr. John Vinsonhaler | Director, Information Systems Laboratory Michigan State University | Discussions on the Evaluation System. |
| Dr. Timothy Weaver | Research Fellow - Educational Policy Research Center, Syracuse University Research Corporation | Discussions on Project goals and activities. |
| Dr. Clarence Williams | Professor - School of Education University of Rochester | Discussion on project goals and the evaluation model. |

General Electric Information Systems and Research and Development Corporation Personnel were utilized as consultants to specific operational problems and by project representation at seminars.